DECISION RECORD
FINDING OF NO SIGNIFICANT IMPACT
for
COPPER RIDGE SHALLOW GAS
EXPLORATION AND DEVELOPMENTORY PILOT PROJECT

INTRODUCTION

Anadarko E&P Company LP (Anadarko) notified the Bureau of Land Management (BLM), Rock Springs Field Office (RSFO), that the company proposes to explore and potentially develop a shallow gas project located on checkerboard lands in Townships 16 and 17 North, Ranges 100 through 101 West, 6th Principal Meridian, Sweetwater County, Wyoming. Anadarko is the principal owner of the private surface lands involved in the project while State of Wyoming owns some surface estate. The action would allow Anadarko to explore and possibly develop their federal oil and gas leases in conjunction with exploration and development of their privately-held minerals.

Access to the area is provided by Interstate Highway 80 and Sweetwater County Roads 4-19 and 4-24 or Highway 430 and Sweetwater County Road 4-26.

The proposal involves drilling, completing, and operating a maximum of 89 shallow gas wells and related production and water disposal facilities in the Copper Ridge Project Area (CRPA). The project area includes approximately 11, 565 acres of public land administered by the BLM, 12,108 acres of privately owned land, and 1,280 acres of land owned by the State of Wyoming for a total of 24, 953 acres. The CRPA overlies an area already developed by two existing oil and gas projects; the Brady and the Jackknife Springs Fields.

The 89 wells proposed under this action would be drilled on a 160-acre spacing and utilize much of the existing infrastructure and surface facilities including access roads, drill pads, and pipeline corridors. However, additional infrastructure including access roads, compression, and gathering and water injection pipelines would be necessary to develop the project.

BLM released a scoping notice to the public on October 15, 2002 for a 30-day review period. Thirteen comment letters were received. All issues identified during public scoping have been considered and documented in the analysis. Comments received in response to public scoping and the BLM response to those comments can be found in Appendix A of this decision. Based on the analysis and review of the regulations contained in 43 CFR 1501.4 (2), the BLM is releasing the Decision Record and Finding of No Significant Impact with the Environmental Assessment. The action proposed is not or closely similar to one which normally requires an environmental impact statement under the procedures adopted by the agency pursuant to 1507.3 (Department Manual 516 DM 6, Appendix 5: 5.3, Actions Normally Requiring an EIS); nor is the proposal one without precedent (oil and gas activity is an approved and on-going activity in the area).

ALTERNATIVES CONSIDERED

The attached Environmental Assessment for the Copper Ridge Shallow Gas Exploration and Development Project analyzed two alternatives. The Proposed Action involves drilling of up to 89 wells on a 160 acre spacing utilizing much of the existing infrastructure and surface facilities such as access roads and pipeline corridors presently utilized in the Brady and Jackknife Springs fields.

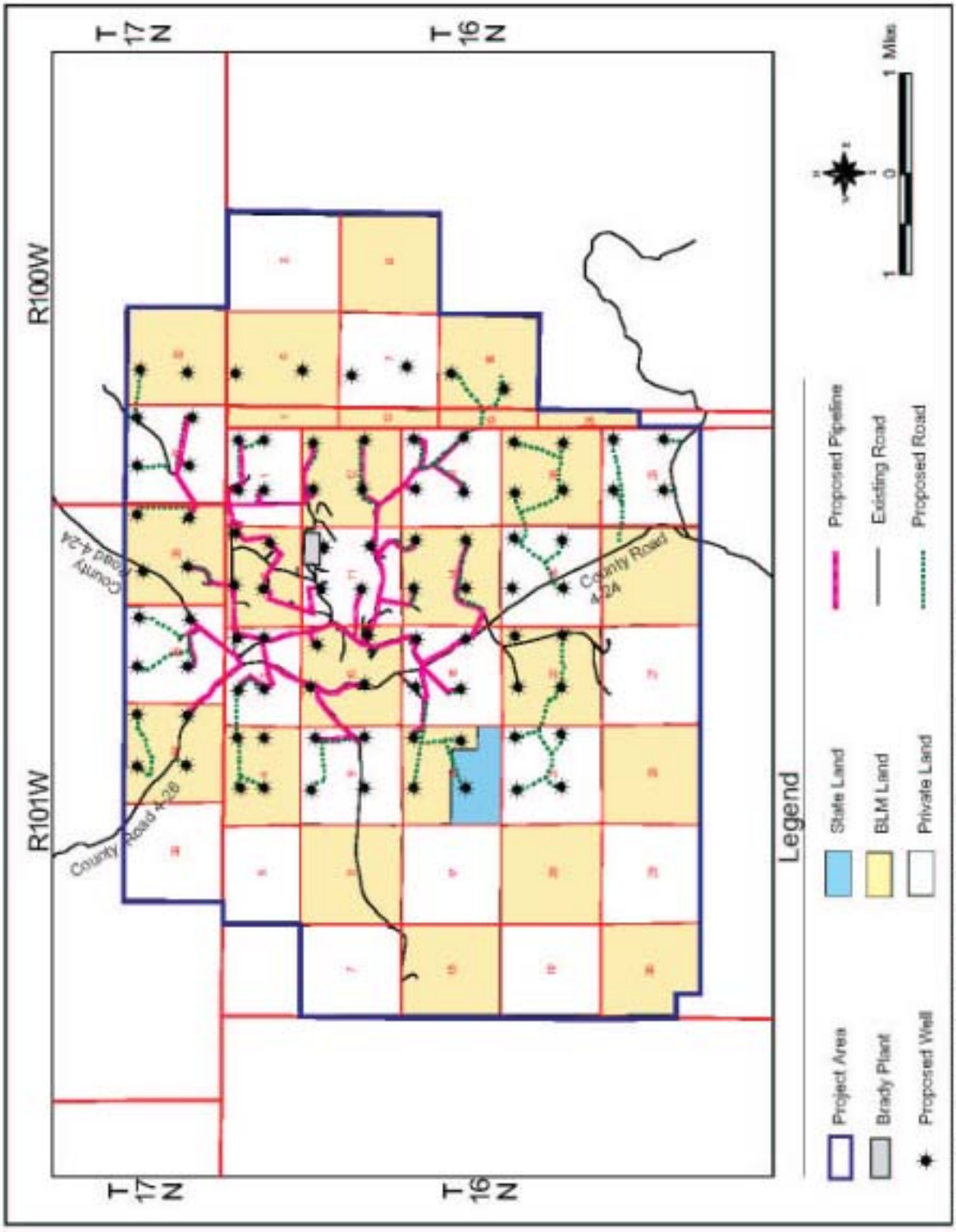

Figure 2-1. Proposed action on the Copper Ridge Shallow Gas Project.

However additional facilities including new access roads, gathering and water injection pipelines, and a compressor station will be required.

Regulations contained in 40 CFR 1508.9 state that alternatives as required by Section 102(2)(E) of the National Environmental Policy Act directs agencies to study, develop, and describe appropriate alternatives for proposals which involve unresolved conflicts concerning alternative uses of available resources. Two alternatives were analyzed in detail in the attached EA including the Proposed Action and the No Action alternative which analyzed the impacts of denying the proposal.

Alternatives Considered but Eliminated Detailed Study

One other alternative was considered but eliminated from detailed study. The alternative includes the following.

Horizontal or Directional Drilling Method Alternative: This alternative was considered but eliminated from detailed study due to the following reasons.

Horizontally drilled wells are estimated to cost 5 to 10 times as much as a similar vertically drilled well with no commensurate increase in production. This is due to the requirement to drill up to 24 laterals to develop the gas resource in a formation containing up to 24 coal seams. Horizontal laterals will not be economical in thin seams as the cost to drill will exceed the return on ultimate gas recovery. Under vertical drilling techniques, each seam will contribute to the overall production and will maximize recovery of the gas resource.

Reservoir characteristics found in the project area include interspersed coal and sands. The coals found in the Almond formation are made up of three subgroups of coals, with 8 to 12 seams ranging in thickness form 1 to 10 feet. Some coals correlate between wells over long distances while a high number of seams do not correlate from well to well. Thin or discontinuous target zones are poor prospects for horizontal drilling. In addition, even the thickest coal seams are below the vertical resolution of current seismic technology and therefore yield no target control for lateral drilling. Without the knowledge of coal seam locations, horizontal or directional drilling will not produce the desired results. Because of these factors, a horizontal or directional drilling (including clustering of wells on one pad) alternative was deemed to be unreasonable since they are economically and technically unfeasible in this situation.

DECISION

Based upon the analysis of the potential environmental impacts described in the attached Environmental Assessment for the Copper Ridge Shallow Gas Exploratory and Development Project, and in consideration of internal, public, industry, and governmental agency comments received during public scoping, and that no unresolved issues remain after analysis, BLM approves the Proposed Action alternative as described in Chapter 2 in the attached Environmental Assessment. Approval of the project will allow Anadarko to gain authorization of the required permits to drill and rights-of-way to implement project components on public lands managed by the BLM. Project-wide applicant committed measures (Chapter 2) and approved mitigation from Chapter 4 provide conditions of approval or stipulations for actions on public lands. All measures required to eliminate or reduce impacts on public lands are identified in Appendix B of this decision.

Approved Project Components

This decision authorizes processing of applications for permit to drill or right-of-way applications for the following project components on BLM-administered public lands and minerals within the project area, subject to the requirements identified in Appendix B of this decision. Approval of permits for individual components is required prior to surface disturbing activities. These components include:

- Drilling and completion of up to 89 shallow gas wells on 89 well locations of which 41 wells will be located on public lands managed by the BLM. Construction of well pads will cause a total initial and life-of-project disturbance of 89 acres of which 41 acres will be located on public lands.

- Construction of approximately 22.65 miles of new access road of which 10.25 miles will be constructed on public land. Initial disturbance from construction of access roads will entail 161.82 acres of which 74.54 acres will be on public lands. Life-of-project disturbance will be 80.88 acres of which 37.27 acres will be located on public lands.

- Construction of approximately 66.75 miles of gathering and water injection pipeline. It is expected that approximately two-thirds of the disturbance associated with construction of these pipelines will occur in previously disturbed pipeline corridors. Initial disturbance from construction of pipelines will entail 242.71 acres of which 111.81 will be located on public lands. All disturbances associated with burying pipelines will be reclaimed and seeded with native vegetation species.

The associated 0.9 acre compressor station site will be located on private lands; therefore, the BLM has no authority to approve this component. As proposed, all produced water will be injected into existing water disposal wells located within the project area. Other ancillary facilities may be necessary to meet production needs. These facilities include but are not limited to:

- Produced water disposal equipment
- Individual well site compression
- Individual well site liquids recovery units
- Electrical power lines
- Gas metering stations
- Pipeline pigging facilities
- Field storage buildings
- Cathodic protection facilities.

The number and location of such facilities are unknown at this time but most will be installed within the boundaries of existing or approved disturbances and would be subject of appropriate environmental analysis once proposed.

Approval of the Proposed Action is conditional upon and subject to the measures found in Appendix B of this decision, and adherence to any additional conditions of approval attached to the approved application for permit to drill, adherence to oil and gas leases, and adherence to right-of-way grant stipulations.

MANAGEMENT CONSIDERATION/RATIONALE FOR THE DECISION

The decision to approve the Proposed Action is based on the following factors.

1. Consistency with Resource Management Plan and Land Use Plans

The Proposed Action is in conformance with the Green River Resource Management Plan (RMP). The objective for oil and gas management is to "provide consideration for oil and gas leasing, exploration, and development of oil and gas while protecting other values." Public lands within the checkerboard area are open to mineral leasing and development to promote mineral resource recovery with appropriate mitigation measures applied on a case-by-case basis. The objective of the realty program is to "manage the public lands to support the goals and objectives of other resource programs" and "to respond to public demand for land use authorizations." The proposal is in compliance with state and county land use plans and/or policies.

2. National Policy

Private exploration and development of federal oil and gas leases is an integral part of the BLM oil and gas leasing program under the authority of the Mineral Leasing Act of 1920, as amended and the Federal Land Policy and Management Act of 1976, as amended. The United States continues to rely on foreign energy sources. The BLM oil and gas program is designed to encourage development of domestic oil and gas reserves, particularly in the checkerboard area. This decision is consistent with national policy. In addition, analyzing a comprehensive drilling program complies with existing policy to analyze proposed development within a geographic area.

3. Agency Statutory Requirements

This decision is consistent with all federal, state, and county authorizing actions required to implement the Proposed Action. All pertinent statutory requirements applicable to this proposal were considered. Any necessary conferencing or consultation with U.S. Fish and Wildlife Service has been completed (Appendix C of this decision). Compliance with Section 106 of the Historic Preservation Act will be completed prior to approval of permits for individual components.

4. Relevant Resource and Economic Issues

Potential impacts from Anadarko's proposal to surface and subsurface resources identified in the attached Environmental Assessment are considered to be insignificant (necessary and due) after application of the protective measures proposed and mitigation identified in attached analysis. These measures are described in Appendix B of this decision. The economic benefits derived from implementation of the Proposed Action in the form of continuing employment opportunities, equipment, services, and potential revenues should production of natural gas ensue are considered important.

5. Application of Measures to Avoid or Minimize Environmental Impacts

Federal environmental protection laws (e.g., Clean Air Act, Clean Water Act, etc.) apply to all public lands administered by the BLM and are included as part of the standard oil and gas lease terms and the terms and conditions of right-of-way grants. In addition, adoption of measures found in Appendix B of this decision provides a practicable means to avoid or minimize potential impacts to the environment. These measures will be attached to

approved permits. Should conditions warrant, additional measures could be applied to individual permits or rights-of-way subject to additional environmental analysis.

6. Opportunity for Public Involvement

BLM initiated public scoping on October 15, 2002. Thirteen comment letters were received in response. All issues, concerns, and alternatives brought forth during public scoping have been considered during the analysis, documented, and no unresolved issues remain. BLM has provided responses to individual scoping comment letters in Appendix A of this decision.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the analysis contained in the attached Environmental Assessment for the Copper Ridge Shallow Gas Exploration and Development Project and with implementation of the protective measures identified in Appendix B of this decision, the Proposed Action will not cause a significant impact to the quality of the human, natural, and physical environment. Therefore, an environmental impact statement is not necessary.

APPEAL

Under BLM regulations, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include the information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing to the State Director (920), Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, within 20 business days of the date such notice of decision was received or considered to have been received. This decision will be considered to have been received seven (7) business days after the date it is mailed.

The decision of the State Director could be appealed to the Interior Board of Land Appeals in accordance with the regulations contained in 43 CFR 3165.4 and 43 CFR Part 4. Each adverse party to any such appeal must be provided with all documentation in accordance with 43 CFR 4.413(a). The adverse parties to any appeal of the decision by the State Director include:

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SIGNATURE

/s/ Ted A. Murphy
Assistant Field Manager,
Lands and Minerals

December 12, 2003
Date

APPENDIX A
COMMENT LETTERS AND RESPONSES
FROM PUBLIC SCOPING

The BLM released a scoping notice to the public on October 15, 2002. Thirteen comment letters were received in response to BLM's request for public input. Below are the comments received (noted in *italic font*) and BLM's response (regular font).

Petroleum Association of Wyoming

PAW has the following comments regarding the above referenced document:

The Applicant is proposing to utilize existing infrastructure and surface facilities in an area that is currently being developed for oil and gas. The project proponent is bound by the stipulations in the Green River Resource Management Plan along with standard lease terms. By utilizing existing infrastructure, the mandatory mitigation in effect is more than adequate for this proposed project and additional concerns can be analyzed in an Environmental Assessment. Surface disturbance will be minimal and there is nothing present to indicate that an Environmental Impact Statement is necessary for this project.

Best management practices will be utilized in the project area.

The Applicant is proposing to drill up to a "maximum of 89 wells on 160 acre spacing and utilizing much of the existing infrastructure and surface facilities including access roads, drill pads, and pipeline corridors…"in an existing oil and gas field. This proposed action will assist in extending the 'life of the current field production in order to maximize recovery of the resource while the infrastructure is in place. A significant portion of the project is proposed to traverse private property or boarders the section lines of private/BLM lands. The cumulative effects of this project will be minimal.

Your comment is correct. Much of the existing infrastructure and surface facilities will be used. In addition, over one-half of the project area encompasses privately owned lands.

There is not enough detailed information in the scoping statement to identify reasonable alternatives that shall be evaluated in the environmental analysis. Once the agencies determine the level of analysis for the project, the agencies and the operator shall develop reasonable alternatives when drafting the NEPA document. PAW believes that with the lack of information available, it is premature to identify alternatives at this time.

Part of the scoping process is to help BLM identify possible alternatives for consideration.

Detailed analysis shall be included in the environmental document addressing socio-economic impacts and the positive affects the project will have for the State of Wyoming and the local counties and communities. A section of the document shall discuss the "local economy" significance criteria. PAW recognizes that the social and economic opportunities generated from the project will continue to benefit the residents of Wyoming and the participating counties by directly creating new jobs and producing additional revenues.

Your comment has been considered. See sections 3.12 and 4.12.

In conclusion, PAW supports the proposed action and believes that the Applicant and Agencies will adequately address concerns during the appropriate level of NEPA analysis. BLM is encouraged to move forward with the development of this document in a timely manner.

Office of Federal Land Policy

The Office of Federal Land Policy has reviewed the referenced Scoping Notice on behalf of the State of Wyoming. This Office also distributed the referenced document to all affected state agencies for their review, in accordance with State Clearinghouse procedures. Attached are comments from the Office of State Lands and Investments, the State Historic Preservation Office and the Wyoming Game and Fish Department. While the State defers to its agencies' technical expertise in developing the State's position, the responsibility to articulate balanced official, unified State policies and positions lies with the Governor or the Office of Federal Land Policy.

At this time in the initial scoping process, the Office of Federal Land Policy has no comments. We do ask however, that the attached State Agency comments receive your favorable consideration.

Please continue to provide this office with either four hard copies or electronic copy (submit to OFLP@state.wy.us) of continued information for review and distribution to interested agencies. Thank you for the opportunity to comment.

The BLM has considered comments from State agencies.

Office of State Lands and Investments

The Office of State Lands and Investments has reviewed the referenced scoping statement. The comments regarding this document are specific to this agency's statutory mission within State government which is to provide timely, accurate and cost effective service to the Board of Land Commissioners, the State Loan and Investment Board, policymakers and the citizens of Wyoming to facilitate wise and reasonably analytical decision making that will maximize the State's assets and resources in accordance with mandated authorities. In that regard, these comments are meant to, in association with all other agency comments, assist in defining the Official State Position. These comments defer to and are subordinate to the Official State Position.

Assuming Anadarko will comply with the Rules and Regulations adopted by the Board of Land Commissioners in accordance with W.S. 36-2-107 and W.S. 36-9-118 in the event it is necessary to traverse state lands, and will be sensitive to state land access issues, our office has no specific concerns regarding this action at this juncture of the NEPA process.

We appreciate this opportunity to comment and if we may be of further assistance, please let us know.

Thank you for your comments.

Department of State Parks & Cultural Resources

Sara Sheen of our staff has received information concerning the aforementioned. Thank you for allowing us the opportunity to comment.

Management of cultural resources on Bureau of Land Management (BLM) projects is conducted in accordance with Section 106 of the National Historic Preservation Act and Advisory Council regulations 36 CFR Part 800. These regulations call for survey, evaluation and protection of significant historic and archeological sites prior to any disturbance. Provided the BLM follows the procedures established in the regulations, we have no objections to the project. Specific comments on the project's effect on cultural resource sites will be provided to the BLM when we review the cultural resource documentation called for in 36 CFR Pan 800. Please refer to SHPO project control number 1l02SESO04 on any future correspondence dealing with this project. If you have any questions contact Sara Sheen at 307-777-7498 or me at 307-777-6311.

Your comments have been considered. See sections 3.11 and 4.11.

Wyoming Game and Fish Department

Terrestrial Considerations

This project lies within winter-yearlong range of the Bitter Creek antelope herd. South Rock Springs mule deer herd and the Petition elk herd. The nearest sage grouse leks are located in NE section of 26, T16N, Rl01W, NE section 25, T17N, RI01W, and NE section 15, T17N, R101W. The Copper Ridge Project area is within an area with two existing oil and gas projects (Brady Field and Jackknife Spring Field).

We have identified the following issues, concerns, and opportunities that the Environmental Assessment shou1d include:

- *if this is a coal bed methane project, discharge water issues shall be addressed*
- *analysis of direct, indirect, and cumulative impacts to wildlife and their habitat within and adjacent to the project area shall be provided*
- *displacement of big game and direct big game mortality due to vehicle collisions and potential increased poaching shall be addressed*
- *impacts on strutting sage grouse (direct disturbance, noise, predation increases from power line construction) shall be disclosed and mitigation addressed*
- *mitigation for short-term and long-term impacts to habitat shall be addressed*

Your comments have been considered. See sections 2.0, 3.7, 4.7, and 5.0.

The following points shall also be addressed in the EA.

An annual wildlife monitoring plan shall be included to document potential impacts throughout the life of the play. The protocol shall specify increases in survey intensity relative to increases in well density per section. We encourage drilling multiple wells/pad whenever feasible, and efforts shall be made to minimize disturbance during initial development and throughout the production phase. These could include use of automated pumping facilities and remote monitoring. This is especially important to wildlife and associated recreation during certain periods of the year, such as during sage grouse strutting, raptor nesting, and when big game are on winter ranges.

Monitoring of wildlife will be conducted as part of the permitting process for individual components.

When exceptions to stipulations are requested, there is often a need for additional sage grouse lek, raptor nest, and big game winter range distribution data for a specific area. These surveys shall be funded by the operator. Whenever feasible, Department personnel can do the actual surveys.

The BLM will continue to coordinate requests for an exception to wildlife seasonal stipulations with the Wyoming Game and Fish Department.

We concur with efforts to reclaim sites to native vegetation as quickly as possible. The reclamation analysis shall outline minimum reclamation standards and emphasize the use of native plant species.

Your comments have been considered. See section 2.1.10.

We encourage all pipelines and power lines to be buried underground and along existing roads to reduce disturbance to vegetation. Reserve pits used during the drilling phase shall be fenced to prevent entrapment of wildlife, and then reclaimed as soon as drilling is completed. Workers shall be prohibited from bringing dogs and guns to job sites during both development and production.

All pipelines will be buried (see Section 2.1.4). Additional powerlines could be required (see Sections 2.1.6 and 2.1.9) but at this time, it is expected the existing power infrastructure is sufficient for the project.

We encourage the lowest possible road densities, in order to minimize impacts to wildlife populations from direct habitat loss and disturbance by vehic1es. In areas where seasonal stipulations are in effect, locked gates, signs, and seasonal closures shall be used to reduce vehicle traffic. Closed roads shall be immediately obliterated, reseeded with native vegetation, and signs installed to inform the public of the closure.

Your comments have been considered. See section 2.1.2. Existing roads will be utilized and any new roads will be designed to minimize density.

Aquatic Considerations

There are no fishery/aquatic concerns related to this project, since much of the development will use existing roads and facilities.

Thank you for your comment.

U.S. Fish and Wildlife Service

Thank you for your letter of October 15, 2002, regarding the Anadarko Copper Ridge Shallow Gas Project located in T16-17N, R100-101W in Sweetwater County, Wyoming. This exploratory project proposes a maximum of 89 wells at 160-acre spacing. The project area encompasses 24,953 acres of which 11,564 acres are Federal land. The project proposes to utilize existing oil and gas facilities and infrastructures where possible. A personal communication with Ms. Teri Deakins (November 4, 2002) of your office, clarified that this shallow gas project is a coal bed methane (CBM) project and not a traditional gas project.

The project will entail exploration and possible production from gas-bearing coal seams as well as adjacent sands. Exploration and production will use the same methods as conventional drilling. All produced water will be reinjected into existing water disposal wells.

The U.S. Fish and Wildlife Service (Service) is providing you with the following scoping comments as well as an updated species list for the project as described above. We hope that the following information will assist you in making a determination of potential effects on listed species from the proposed project.

In accordance with section 7(c) of the Endangered Species Act of 1973, as amended (Act), my staff has determined that the following threatened or endangered species, or species proposed for listing under the Act, may be present in the project area.

LISTED AND PROPOSED SPECIES

Species	***Status***	***Expected Occurrence***
Bald eagle	*Threatened*	*Found throughout the state*
Black-footed ferret	*Endangered*	*Prairie dog towns*
Mountain Plover	*Proposed*	*Grasslands*
Ute-ladies'-tresses	*Threatened*	*Seasonally moist soils and wet meadows of drainages below 6,500 feet elevation.*

Bald eagle: *Habitat loss still remains a threat to the bald eagle's full recovery. Bald eagles are believed to live 30 years or longer in the wild, and even longer in captivity. They mate for life and build huge nests which are often reused year after year. Bald eagles incubate 2-3 eggs for about 35 days and young eagles are flying within 3 months. Disease, lack of food, bad weather, and human interference can kill eaglets; sometimes only about half will survive their first year. In order to reduce adverse affects to the bald eagle a disturbance-free buffer zone of 1 mile shall be maintained around their nests and winter roost sites. Activity within 1 mile of an eagle nest or roost may disturb the eagles and result in incidental "take."*

Black-footed ferret: *Black-footed ferrets may be affected if prairie dog colonies are impacted. If white-tailed prairie dog (Cynomys leucurus) towns or complexes greater than 200 acres will be disturbed, surveys for ferrets are recommended in order to determine if the action will result in an adverse effect to the species. These surveys are recommended even if only a portion of the town or complex will be disturbed. A prairie dog town or complex consists of two or more neighboring prairie dog towns each less than 7 kilometers (4.34 miles) from each other Black- footed Ferret Survey Guidelines (USFWS 1989). If a field check indicates that prairie dog towns may be affected, you shall contact this office for guidance on ferret surveys.*

Bald eagle and black-footed ferret have been considered. See section 3.8.

Mountain plover: *The mountain plover is a small bird associated with shortgrass prairie, plains, alkali flats, agricultural lands, cultivated lands, sod farms, and prairie dog towns and shrub-stepped landscapes at both breeding and wintering locales. Plovers may nest on sites where vegetation is*

sparse or absent, or near closely cropped areas, manure piles or rocky areas. Mountain plovers are rarely found near water and show a preference for previously disturbed areas or modified habitat. The birds occupy suitable breeding habitat in many of the Great Plains states from Canada south to Texas from late March through July.

Mountain plovers may occur in the project area. If plovers are found in the area, we ask that you coordinate with this office to discuss whether the project is likely to cause jeopardy to the species, and identify measures that will minimize or eliminate any proposed adverse effect. The Service recommends surveys for plovers using the Mountain Plover Survey Guidelines, (USFWS 2002) in all suitable habitat as well as avoidance of nesting areas from April 10 through July 10, to minimize adverse impacts to plovers within a project site. In some cases, project activities can be conducted between August 15 and March 15 to avoid affecting this species.

> The U.S. Fish and Wildlife Service no longer considers the mountain plover a proposed species. The BLM treats this species as a sensitive species and applies timing limitations to protect the bird. See section 3.8.2.2 and 4.8.2.1.2.

Ute ladies'-tresses: *Ute ladies'-tresses is a perennial, terrestrial orchid with stems 2 to 5 dm tall, narrow leaves, and flowers consisting of few to many small white or ivory flowers clustered into a spike arrangement at the top of the stem. It blooms from late July through August; however, depending on location and climatic conditions, orchids may bloom in early July or still be in flower as late as early October. The Ute ladies'-tresses is endemic to moist soils near wetland meadows, springs, lakes, and perennial streams. It occurs generally in alluvial substrates along riparian edges, gravel bars, old oxbows, and wet meadows at elevations from 4,200 to 7,000 feet. The orchid colonizes early successional riparian habitats such as point bars, sand bars, and low lying gravelly, sandy, or cobbly edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. Ute ladies'-tresses seems generally intolerant of shade and is found primarily in open grass and forb-dominated sites where vegetation is relatively open and not dense or overgrown. The plants usually occur as small scattered groups. Surveys conducted at other times of the year area not reliable and are therefore not acceptable to the Service for purposes of clearance under section 7 of the Act. Surveys shall be conducted by knowledgeable botanists trained in conducting rare plant surveys. The Service does not maintain a list of "qualified" surveyors but can refer those wishing to become familiar with the orchid to experts who can provide training/services.*

> This species have been considered in the analysis. See section 3.8.1.4.

CANDIDATE SPECIES

The yellow-billed cuckoo (Coccyzus americanus) is a candidate for listing as threatened or endangered and may occur in riparian areas west of the Continental Divide. Many Federal agencies have policies to protect candidate species from further population declines. We will appreciate receiving any information available on the status of this species in or near the project area. In addition, if the yellow-billed cuckoo is listed prior to the completion of your project, unnecessary delays may be avoided by considering project impacts to candidates now.

The BLM has made a no effect determination as this species does not occur in the area. See section 3.8.1.2.

MIGRATORY BIRDS

Under the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (BGEPA) Federal agencies, and their applicants, have a mandatory obligation to protect the many species of migratory birds, including eagles and other raptors that may occur on lands under their jurisdiction. The MBTA, 16 U.S.C. 703, enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations and does not require intent to be proven. Section 703 of the Act states, "Unless and except as permitted by regulations ...it shall be unlawful at any time, by any means or in any manner, to ...take, capture, kill, attempt to take, capture, or kill, or possess ...any migratory bird, any part, nest, or eggs of any such bird..." The BGEPA, 16 U.S.C. 668, prohibits knowingly taking, or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing.

Work that could lead to the take of a migratory bird including an eagle, their young, eggs, or nests shall be coordinated with our office before any actions are taken. Removal or destruction of such nests, or causing abandonment of a nest could constitute violation of one or both of the above statutes. Removal of any active migratory bird nest or nest tree is prohibited. Permits for nest manipulation, including removal or relocation may, under certain circumstances, be issued for inactive nests only. For golden eagles, inactive nest permits are limited to activities involving resource extraction or human health and safety. Mitigation, as determined by the local Ecological Services field office, may be required for loss of these nests. No permits will be issued for an active nest of any migratory bird species, unless removal of an active nest is necessary for reasons of human health and safety. Therefore, if nesting migratory birds are present on, or near the project area, timing is a significant consideration and needs to be addressed in project planning.

If nest manipulation is proposed for this project, the project proponent shall contact the Service's Migratory Bird Office in Denver at 303-236-8171 to see if a permit can be issued for this project. No nest manipulation is allowed without a permit. If a permit cannot be issued, the project may need to be modified to ensure take of a migratory bird or eagle, their young, eggs or nest will not occur.

Your comments have been considered in the analysis. See sections 3.8.3 and 4.8.3.

SAGE GROUSE

Greater sage grouse (Centrocercus urophasianus) are declining throughout their range. Anecdotal information from several sources in Wyoming, suggests that sage grouse populations are negatively affected by construction activities, especially those that degrade important sagebrush habitat, even when mitigative measures are implemented (Braun 1998, Lyon 2000). There is some evidence that grouse populations do repopulate oil and gas developed areas (Braun 1987). However, there is no evidence that populations attain their previous levels and reestablishment of sage grouse in a reclaimed area may take as long as 20-30 years (Braun 1998). Please consider

the importance of crucial wintering habitat for sage grouse during project planning by minimizing loss of sage brush.

We encourage the Bureau of Land Management (Bureau) to take all necessary measures allowable to protect the sage grouse in the project area to ensure this project does not exacerbate factors contributing to this species' decline. We recommend avoidance of any activity that will disrupt brood rearing during the period June 1 through July 31. In addition, we recommend that you contact the local Wyoming Game and Fish biologist to more accurately determine the local hatch dates, areas of nesting and brood rearing, and crucial winter habitat within the project boundaries.

> Your comments have been considered in the analysis. See sections 3.7.6 and 4.7.11.3.

CONSULTATION

Section 7 (a)(2), of the Act, requires consultation with the Service when a Federal action may affect a listed species. This consultation will ensure that any action authorized, funded or carried out by a Federal agency is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. The process is initiated by the Federal agency after it has determined if its action may affect (adversely or beneficially) a listed species. Section 7(a)(4) requires conferencing with the Service when a Federal action is likely to jeopardize the continued existence of a proposed species or result in destruction or an adverse modification of proposed critical habitat. Section 7(c) requires that a biological assessment be prepared for any Federal action that is a major construction activity to determine the effects of the proposed action on listed and proposed species.

If a biological assessment is not required (i.e., all other actions), the lead Federal agency is responsible for review of proposed activities to determine whether listed species will be affected. The Service will appreciate the opportunity to review any such determination document. If it is determined that the proposed activities may affect a listed species, you shall contact this office to discuss consultation requirements. If it is determined that any Federal agency program or project "is likely to adversely affect" any listed species, formal consultation shall be initiated with this office. Alternatively, informal consultation can be continued so we can work together to determine how the project could be modified to reduce impacts to listed species to the "not likely to adversely affect" threshold. If it is concluded that the project "is not likely to adversely affect" listed species, we shall be asked to review the assessment and concur with the determination of not likely to adversely affect.

For those actions where a biological assessment is necessary, it shall be completed within 180 days of receipt of a species list, but can be extended by mutual agreement between the lead agency and the Service. If the assessment is not initiated within 90 days of receipt of a species list, the list of threatened and endangered species shall be verified with me prior to initiation of the assessment. The biological assessment may be undertaken as part of the agency's compliance of section 102 of the National Environmental Policy Act (NEPA), and incorporated into the NEPA documents. The Service recommends that biological assessments include:

1. a description of the project;
2. a description of the specific area potentially affected by the action;
3. the current status, habitat use, and behavior of threatened and endangered species in the project area;
4. discussion of the methods used to determine the information in item 3;
5. direct and indirect impacts of the project to threatened and endangered species, including impacts of interrelated and interdependent actions;
6. an analysis of the effects of the action on listed and proposed species and their habitats including cumulative impacts from Federal, State, or private projects in the area;
7. measures that will reduce or eliminate adverse impacts to threatened and endangered species;
8. the expected status of threatened and endangered species in the future (short and long term) during and after project completion;
9. determination of "is likely to adversely affect" or "is not likely to adversely affect" for listed species;
10. determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species;
11. alternatives to the proposed action considered, a summary of how impacts of those alternatives on listed and proposed species will differ from the proposed action, and the reasons for not selecting those alternatives;
12. citation of literature and personal contacts used in the assessment.

WATER DEPLETIONS

If the proposed action will lead to water depletion (consumption) in the Colorado River System, impacts to the endangered bonytail (Gila elegans), Colorado pikeminnow (Ptychocheilus lucius), humpback chub (Gila cypha), and the razorback sucker (Xyrauchen texanus) shall be included in the evaluation.

In general, depletions include evaporative losses and/or consumptive use. Project elements that could be associated with depletions to the Colorado River system include, but are not limited to, ponds (detention/recreation/irrigation storage/stock watering), lakes (recreation/irrigation storage/municipal storage/power generation), reservoirs (recreation/irrigation storage/municipal storage/power generation), created or enhanced wetlands, pipelines, wells, diversion structures, and water treatment facilities.

Any actions that may result in a water depletion to the Colorado River system shall be identified. The document shall also include an estimate of the amount and timing (by month) of average annual water depletion (both existing and new depletions), and describe methods of arriving at such estimates.

Consultation with the Service has been completed.

COALBED METHANE PRODUCED WATER QUALITY

Coalbed methane produced water can contain a variety of trace elements including arsenic, selenium, barium, and zinc. The current aquatic chronic criterion of 5 µg/L selenium is not adequate

for preventing adverse effects on fish and aquatic birds. To protect fish, waterfowl, shorebirds, and other wildlife from adverse effects, waterborne selenium concentrations shall be 2 µg/L or less (Skorupa and Ohlendorf 1991; Lemly 1993). The Service has advocated a selenium criterion of 2 µg/L because concentrations exceeding 2 µg/L may create a risk for bioaccumulation in fish and sensitive species of aquatic birds (Hamilton 2002). Based on the risk associated with bioaccumulation the 'amount discharged' of selenium shall be monitored and regulated, rather than the 'concentration released', since the latter does not take into account the volume component (Hamilton 2002). Discharge of produced water containing waterborne selenium greater than 2 µg/L also could result in impacts to fish and aquatic birds inhabiting the downstream receiving waters. Impoundment of streams receiving produced water could increase the waterborne selenium concentrations through evaporative concentration and create a hazard for migratory aquatic birds. Fish also can bioaccumulate selenium directly from the water as well as from their diet. Top level consumers in aquatic systems, such as waterfowl can readily accumulate selenium concentrations that lead to low reproduction, embryonic deformities and increased mortality (Ohlendorf et al 1988).

Selenium bioaccumulates in aquatic vegetation and invertebrates. Aquatic invertebrates can contain concentrations 2 to 6 times those found in aquatic plants. Selenium can concentrate in the food chain up to 300,000 times the concentration in the water (Besser et al. 1993). For example, the Kendrick irrigation project, located west of Casper, Wyoming, has documented deformities and poor reproductive success in American avocets and eared grebes resulting from elevated selenium concentrations. The median concentration of dissolved selenium in water samples from two closed basin ponds were 38 and 54 µg/L (See et al. 1992). Due to the bioaccumulation of selenium in food items from these ponds, aquatic birds suffered from impaired reproduction and embryonic deformities (See et al. 1992). Selenium is commonly found in coal (Eisler 1985).

The discharge of CBM produced water with selenium >2 J µg/L into closed containment pits or ponds for disposal by evaporation also may present a risk to aquatic birds using these ponds if the ponds provide a food source in the form of submerged aquatic vegetation or aquatic invertebrates. Selenium in closed containment ponds can be elevated through evaporative concentration. The impoundment of produced water in areas with seleniferous soils also could cause mobilization of selenium into the food chain. Seleniferous soils usually are derived from Cretaceous shale formations. The Service was unable to find selenium data in the scoping notice for the project.

Produced water often contains high concentrations of dissolved salts, making it unsuitable for irrigation and toxic to native plants. Soil irrigated with this water will accumulate salts which destroys soil structure and inhibits water uptake by plants. The sodium absorption ratio (SAR) of produced water typically is 10-12 times the level beyond which soil will maintain structure to support plant productivity (Bauder, 2002, pers.comm.). While there is debate over absolute values for acceptable limits for SAR, there is consistent agreement that high SAR water is a source of significant impairment of many soils, particularly irrigated soils and soils of arid or semi-arid regions (Bauder 2002). Consequently, important wildlife habitat may be severely impacted or eliminated by surface discharge of produced water. For example, riparian or streamside areas are the single most productive wildlife habitat type in North America. They support a greater variety of wildlife than any other habitat. Riparian vegetation plays an important role in protecting streams, reducing erosion

and sedimentation as well as improving water quality, maintaining the water table, controlling flooding, and providing shade and cover. Impacts to these areas shall be avoided whenever possible.

Additionally, discharging large volumes of produced water into rivers and streams can severely impact aquatic species and their habitats. Potential impacts include changes in stream temperature and hydrology, and increased erosion and sedimentation resulting in the destruction of fish spawning grounds and compromising fish and aquatic invertebrate growth and survival.

> All produced water will be reinjected into existing water disposal wells; thus, no surface disposal of produced water will occur.

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. If the scope of the project is changed, or the project is modified, in a manner that you determine may affect a listed species, this office shall be contacted to discuss consultation requirements pursuant to section 7(a)(2) of the Act. If you have questions regarding our comments or your responsibilities under the Act, please contact Kathleen Erwin of my staff at the letterhead address or phone (307) 772-2374, extension 28.

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water, bottom sediment, and biota in the Kendrick Reclamation Project Area, Wyoming, 1988-90. U.S. Geological Survey Water Resources Investigations Report 91-4131. 142 pp.
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Sweetwater Economic Development Association

The Board of Directors for the Sweetwater Economic Development Association will like to offer our support for the Copper Ridge Shallow Gas Project proposed by Anadarko E&P Company. We

understand that project will overlay an area already developed and will consist of a maximum of 89 wells.

The vast gas and oil reserves located in Sweetwater County, and their subsequent exploration and production, contribute significantly to the economy of Sweetwater County. The Sweetwater Economic Development Association strongly supports safe and responsible development of these resources. We are confident that Anadarko will proceed with this project in strict compliance to all heath, safety and environmental issues.

We appreciate the opportunity to support this project and submit our comments.

Thank you for your comments.

Biodiversity Conservation Alliance, National Wildlife Federation, and Wyoming Outdoor Council

The following are the scoping comments of Biodiversity Conservation Alliance, National Wildlife Federation, and Wyoming Outdoor Council on the proposed Copper Ridge Shallow Gas Project.

Nature of the Project -What is the Target Formation?
After reading your Scoping Notice, we remain unsure of whether this is a coalbed methane or conventional natural gas project. The distinction is an important one to make, as coalbed methane production requires the coal seam to be dewatered before methane is liberated from the coal and can be produced, while conventional natural gas production does not require complete dewatering of the formation, and ideally avoids the water/gas interface altogether to avoid production losses associated with coning. If the "shallow gas" being tapped under this project is in fact coalbed methane, a new Scoping Notice shall be issued clearly stating that fact.

Your comments have been considered. See section 1.1. Exploration and production will target coal seams and adjacent sandstones in the Almond Formation.

Reasonably Foreseeable Development Scenario
It is important for the public to be provided with information on how the Copper Ridge Project affects the Reasonably Foreseeable Development (RFD) scenario. In addition to this, BLM must provide the basis for the RFD scenario in the Green River RMP: Was it based on drilled wells, spudded wells, APD approvals, or project-level approvals? What was the RFD for state, federal, and private wells under the Green River RMP? How does development to date stand with regard to the RFD? Will this project approach the maximum set by the RFD analysis in the Green River RMP? Will this project exceed the RFD?

The proposal is within the RFD scenario analyzed in the Green River RMP which assumed an RFD of 1,258 successful well completions, starting from 1990. A preliminary review of the WOGCC records, from January 1, 1990 through September 2003, there are between 696 and 705 wells producing in the FO. Of these wells 26 are producing CBM. Your comments have been considered, see section 1.2.

Effects on Groundwater

Because the proposed project will target shallow formations, a number of special concerns must be addressed. The BLM shall not approve this project if it will contaminate well-water supplies or ground- water seeps, springs, or other surface water sources. Thus, groundwater flow from the target formation will need to be tracked to determine where it emerges on the surface at springs and seeps and where it enters the Green River system. What is the water recharge rate for the target formation? Are wells currently producing water from the target formation, or adjacent formations which stand to be contaminated or depleted by the proposed project? Baseline water quality information must be gathered from target and adjacent aquifers before the project commences, and aggressive monitoring procedures must be require to ensure that degradation of these aquifers does not occur. Will springs, seeps, or wells dry up as a result of the project? We oppose any action that causes water sources, the lifeblood of plant and wildlife species, to run dry in such an arid environment.

Your comments have been considered. See sections 3.4 and 4.4.

The potential for hydraulic fracturing is particularly troubling, as this process often involves the injection of diesel fuel and other toxins into the target stratum. If hydraulic fracturing is to be allowed under this project, it shall be limited to water-based methods free from toxic substances, as recommended in the recent EPA report on fracing.

Any chemical exclusively used in drilling, completion, or production is exempt under the Resource Conservation and Recovery Act (RCRA). Industry typically uses water-based or nitrogen-based fracing methods.

The project area drains into the Green River watershed, proximately draining into Black Butte Creek and thence via Bitter Creek into the Green River above Flaming Gorge Reservoir. Below Flaming Gorge Dam, these waters will ultimately affect Endangered Colorado River fish species: the razorback sucker, bonytail, and Colorado pikeminnow. Impacts of the proposed project to water quality in the upper Colorado system, and subsequent effects on Endangered Colorado River fishes, must be fully evaluated and disclosed. In addition, the cumulative effects of this project shall be analyzed in combination with the effects of other projects (current or planned) which will effect on the upper Colorado River watershed as a whole.

Consultation with the U.S. Fish and Wildlife Service has been completed.

Produced Water

The wording of the Scoping Notice is ambiguous as to how much produced water will be generated by this project, and the quality of this produced water. We fully expect that BLM will require the operator to reinject produced water only into aquifers of lower water quality. Is the produced water highly saline or sodic? Will a few gallons be produced per day, or thousands? These are important questions that remain to be answered.

We agree with BLM's proposal that no produced waters will be discharged at the surface. However, BLM shall also consider in at least one alternative retrieval injection-the reinjection of the water into a stratum that renders it available for future withdrawal if necessary. It will be important to elucidate how much produced water will be injected into which formations. Will this cause the reinjection aquifer to become over pressurized? What contingency plans will BLM require of the operator to dispose of produced waters if reinjection capabilities are exceeded? Is there a backup plan for surface discharge, and if so, and will it involve lined or unlined reservoirs?

All water produced in association with this project will be reinjected through existing water injection wells. Reinjection of the produced water will not preclude future consideration of treatment of the water for surface use if necessary. The amount of produced water is unknown at this time. As production ensues, data on water quality and quantity will be collected.

Other Effects

Because this project is targeting a shallow reservoir, potential for land subsidence and gas leakage to the surface shall be fully disclosed. Land subsidence has been a result of coalbed methane extraction in past projects, and it stands to reason that the removal of conventional natural gas from a pressurized reservoir could also lead to subsidence. In addition, the degasification of the target reservoir could lead to the venting of natural gas at the surface, killing plants and having a deleterious effect on wildlife. These effects shall be thoroughly studied and disclosed in the forthcoming NEPA document, and the project shall not be approved if widespread land subsidence or natural gas venting are a possibility.

Wells will be cemented to prevent leakage of gas. The coal is within sandstones at a depth of 2,000 to 4,500 ft. Coal will not be removed and dewatering will occur only to the extent that gas desorbs. Subsidence is very unlikely.

Reserve Pits

Your Scoping Notice points out that each well pad will be accompanied by a reserve pit to store waste products. Reserve pits take a lot of space, resulting in the large (200X300 foot) well pads described in the Scoping Notice. These drilling pits contain toxic substances that are a hazard to wildlife that may drink from them or waterfowl that may land on them. To what extent is BLM, consistent with 43 C.F.R. 3101.1-2, considering the full range of reasonable mitigation measures and alternative technologies to reduce these impacts?

A method that must be considered in at least one (if not all) alterative(s) to reduce drilling impacts is "pitless drilling," entailing closed-loop systems that recycle drilling mud rather than dumping it into open pits. In addition to the elimination of toxic waste pits on the surface, this method reduces well field truck traffic by up to 75%, reduces water consumption by 80%, and is actually 8% less costly than constructing and maintaining a reserve pit. The elimination of reserve pits will allow each well pad to be much smaller, significantly reducing the surface impacts of each well. This method has proven successful and cost-effective in the U.S. Due to its environmental advantage, pitless drilling shall be mandated as a standard requirement for this drilling operation, if it is approved. Failure to consider mandatory drilling fluid recycling will allow "unnecessary" degradation of public lands as described in 43 C.F.R. 3101.1-2, which could be avoided.

Conditions, such as a high water table, are not found in the project area. All reserve pits on public lands will be lined.

Powerlines

The Scoping Notice is unclear as to whether new powerlines will be constructed in association with this project. Powerlines can serve as raptor perches, destabilizing the predator-prey balance and affecting populations of small mammals and birds, particularly sage grouse and mountain plover. If powerlines are to be laid, BLM shall require the operator to bury these lines rather than stringing lines from poles.

Power lines could be required (see Section 2.1.9) but at this time, it is expected existing electrical power infrastructure is sufficient for the project.

Air Quality

BLM has the responsibility to examine both the project-level impacts and cumulative impacts of the project on the air quality of the area. In the Scoping Notice, you identified "Potential cumulative effects of drilling and development activities when combined with other ongoing and proposed developments on lands adjacent to the Copper Ridge area." But for air quality, the appropriate level of analysis is the airshed as a whole, not just "adjacent lands." BLM must first determine what the relevant airshed will be, and this determination shall be made on the basis of scientific analysis of wind patterns. Our own interpretation is that the airshed in the project area will include most of south-central and southwest Wyoming along with parts of Utah and northwestern Colorado. The BLM must evaluate the cumulative effect of the Copper Ridge project together with all existing and planned projects within this area, factoring in effects of fugitive pollution from the Salt Lake City airshed.

When this airshed analysis is performed, it shall account for wellhead compressors, separator units, central compressors, venting from condensate tanks, and vehicle emissions. In order to reduce emissions, the mileage of access roads must be minimized, and diesel engines shall not be allowed to power booster compressors. Photo-voltaic cells and hydrogen fuel cell technology must be analyzed in all cases where it is possible to employ these technologies for power generation.

Your comments have been considered. See sections 2.1.11, 3.2.2, and 4.2.

Wildlife Concerns

Oil and gas development can have important negative impacts on wildlife populations. The effects of habitat fragmentation specific to oil and gas development have been shown to decrease the abundance of sagebrush obligate birds, including sage grouse, sage thrasher, Brewer's sparrow, and sage sparrow. Raptors, particularly ferruginous hawks, are sensitive to disturbance near their nest sites. Road construction and vehicle traffic have been shown to disturb ungulates, driving them away from favorable habitat. Prairie dog colonies, a keystone feature in shrub steppe ecosystems, are currently stressed by sylvatic plague, and additional stressors may contribute to local extirpation. In addition, we are concerned about the effects of the proposed project on BLM sensitive species which may inhabit the project area, including the midget faded rattlesnake, Wyoming pocket gopher, swift fox, pygmy rabbit, burrowing owl, and sensitive plant species.

For these reasons, the following measures shall be taken to protect wildlife values in the area:

1. *Survey the are [sic] for sensitive species prior to commencement of the project, and monitor populations periodically during construction and production phases.*
2. *Prohibit all surface disturbances within 2 miles of a sage grouse lek.*
3. *Prohibit surface disturbances within 2 miles of raptor nests.*
4. *Exclude prairie dog colonies from all surface disturbing activities.*
5. *Keep road construction to an absolute minimum.*

Wildlife surveys will be completed as part of the permitting process for those individual components located on public lands. Adequate protective measures have been applied in accordance with the approved Green River Resource Management Plan for actions occurring in public lands. Wildlife has been considered in sections 3.7 and 4.7 of the attached analysis.

National Landscape Conservation System

Lands within the project area to the west of County Roads 4-26 and 4-24 are included within the south unit of the proposed Red Desert Conservation Area (see attached map [map available for review at the Rock Springs Field Office]). This particular portion of the southern unit was included based on the outstanding scenic features of Copper Ridge itself and the undeveloped character of the landscape relative to the nearby Brady field development. Oil and gas developments create long-term scarring of the landscape and degrade its visual qualities substantially, converting scenic vistas into industrial wastes. The BLM shall analyze in at least one of its alternatives the use of extended-reach directional drilling to access gas resources beneath these lands without creating any additional surface impacts on proposed NCA lands.

The BLM is not aware of any National Landscape Conservation proposal involving the lands identified in your comment. The area does not have a topographical feature named "Copper Ridge" and the project area overlies two existing producing oil and gas fields of which the majority of the lands involved are privately owned.

Project Design

It is apparent that this project has been designed with the operator's convenience in mind and little consideration for maintaining healthy wildlife populations and landscape integrity. While the scoping notice claims the project will result in "minimal construction of new roads" through the use of existing roads and well pads, the project map tells a far different story. It is apparent from this map that only 29 of the proposed wells sites lie on or close to existing roads and well pads, while the remaining 60 will require extensive new road and well pad construction. With the oil and gas drilling technology that is available, the BLM shall do much better job at designing a natural gas recovery project to reduce impacts to the landscape and its wildlife.

Approximately 10 miles of new access road will traverse public lands managed by the BLM. The remaining roads will occur on privately owned lands where BLM has no authority over their placement. Existing roads will be used to the extent possible.

Well Spacing

In the Scoping Notice, well spacings are set at 160 acres, the baseline spacing recommended by the State of Wyoming. But while this well spacing may maximize convenience and reduce costs for the operator, it is not the optimal well-spacing from a multiple-use standpoint. A study from northern Colorado indicated that for horizontal wells, 640-acre spacing was the optimum, given that closer spacing will cause inter-rerence [sic] between wells.

Your comments have been considered in the analysis. See sections 1.1 and 2.0.

Directional Drilling

The BLM shall consider an alternative that will exclude areas west of the 4-24/4-26 line, lands falling within the proposed Red Desert National Conservation Area, from surface disturbances. These leases could just as well be drained using directional wells located to the east of this road boundary. Current technology allows directional wells to be drilled up to 6.5 horizontal miles away from the well site, and a well in the Hanna Basin successfully used medium-radius horizontal drilling to access coalbed methane reserves only 600 feet below ground. Thus, it is perfectly feasible to require the operator to employ extended-reach drilling techniques to access gas resources beneath the proposed Red Desert NCA without creating new surface disturbances on this landscape.

Your comments have been considered. See section 2.3.

Clustering Of Wells

In addition, directional drilling allows numerous wells to be clustered on the same pad, reducing the miles of access roads, the number of well pads, and the overall footprint of gas development on the landscape. For lands where some level of surface impacts is acceptable (i.e., east of the 4-26/4-24 line), this allows full development to proceed while minimizing the impacts associated with production. Thus, gas resources can be fully developed without creating the high-impact grid of roads, pipelines, and well pads typical of conventional, vertical well projects. Much of the habitat fragmentation and landscape degradation associated with oil and gas development can thus be avoided. Because the technologies enabling this less environmentally destructive well design method is available today, because BLM is required to consider a range of alternatives (including ones that may be more expensive for the operator), and because the BLM is legally constrained by a multiple-use mandate that requires other values beyond oil and gas to be given consideration when designing projects, we urge you to consider and implement a clustered-well development scenario, using existing roads and well pads as much as possible, if the project goes forward in any form.

Your comments have been considered. See section 2.3.

Range of Alternatives

Federal laws and regulations binding on the BLM require that the agency evaluate a range of alternatives for a major federal action such as this one, which merits a full Environmental Impact Statement. Herein, we have proposed a reasonable alternative (clustered directional drilling with extended-reach drilling beneath the proposed Red Desert NCA) that will satisfy the operator's desire to exploit public resources while at the same time limiting the impacts of the overall project and shifting them away from the sensitive landscape along Copper Ridge. We believe that the interests of the public shall be granted at least equal consideration alongside the profit-driven interests of the operator in this case. We have proposed a development scenario that shall satisfy the requirements of all parties. We fully expect BLM to consider this reasonable alternative in its forthcoming NEP A analysis. In addition, we urge you to implement the other mitigation and/or reduced-impact techniques outlined in these comments so that the environmental damage inherent to this project can be reduced to the fullest extent possible.

The BLM has analyzed all reasonable alternatives. Your comments have been considered. See Chapter 2.

Department of Energy, Western Area Power Administration

The Western Area Power Administration (Western) is in receipt of your October 15, 2002 Scoping Notice for the proposed Copper Ridge Shallow Gas Project, Anadarko E&P Company LP, proponent. The proposed shallow gas project is on checkerboard lands (private and federal surface/minerals) located in Townships 16 and 17 North, Ranges 100 through 101 West, 6th Principal Meridian, Sweetwater County, Wyoming.

Western owns and/or operates transmission lines and related facilities on Federal lands throughout the west, including on BLM-administered public lands within the State of Wyoming. A review of our records indicates there are no Western located on the affected lands; therefore, Western has no comments to offer concerning the proposed shallow gas project.

Thank you for the opportunity to review and comment on your scoping notice. Since we are not impacted by this proposal, please feel free to remove Western from your mailing list for this effort. If you have any questions, please contact Ms. Susan Starcevich at 720-962-7275.

We have removed you from the mailing list for this project.

Federal Energy Regulatory Commission

Please keep us on the mailing list for your Copper Ridge Project.

You are on our mailing list for this project.

Bjork, Lindley, Danielson & Little, P.C.

Please check to assure they are included on the mailing list for the aforementioned project.

You are on our mailing list for this project.

Dave Welch

Please include the Oregon-California Trails Association in this activity.

You are on our mailing list for this project.

Wyoming Department of Transportation

Could you please add WYDOT to the mailing list for the above noted project?

WDOT is responsible for maintenance, construction and access issues on WYO 430 which is used to access the project area. We will appreciate being in t e loop from a transportation perspective.

You are on our mailing list for this project.

APPENDIX B
APPLICANT COMMITTED PRACTICES

Construction, operation, and reclamation procedures will follow the plan of operations described in Section 2.1 (Chapter 2) of the attached EA. The following measures were either proposed by Anadarko or identified during the analysis process. Based on the analysis, it was determined these measures will be applied to any action approved on public lands. These measures may be applied on the private lands owned by Anadarko or State of Wyoming lands if required by the state. An exception to a mitigation measure and/or design feature may be approved on public land on a case-by-case basis when deemed appropriate by the BLM. An exception will be approved only after a thorough, site-specific analysis determined that the resource or land use for which the measure was put in place is not present or will not be significantly impacted.

Preconstruction Planning and Design Measures

- Anadarko and the BLM will make on-site interdisciplinary (ID) team inspections of each proposed and staked facility site (e.g., well sites), new access road, access road reconstruction, and pipeline alignment projects so that site-specific recommendations and mitigation measures can be developed.

- New road construction and maintenance of existing roads in the CRPA will be accomplished in accordance with BLM Manual 9113 standards unless private landowners or the State of Wyoming specify otherwise.

- Anadarko will prepare and submit an APD for each drill site on federal leases to the BLM for approval prior to initiation of construction. Also, prior to construction, Anadarko or its contractors will submit Sundry Notices and/or ROW applications for pipelines and access road segments on federal leases. The APD will include a Surface Use Plan that will show the layout of the drill pad over the existing topography, dimensions of the pad, volumes and cross sections of cut and fill (when required), location and dimensions of reserve pit(s), and access road egress and ingress. The APD, Sundry Notice, and/or ROW application plan will also itemize project administration, time frame, and responsible parties.

- Anadarko will slope-stake construction activities when required by the BLM (e.g., steep and/or unstable slopes) and receive approval from the BLM prior to start of construction.

Range Resources/Other Land Uses/Invasive/Noxious Weed Monitoring and Management

- Anadarko will coordinate with the affected livestock operators to ensure that livestock control structures remain functional during drilling and production operations.

- Incorporate best known weed prevention measures as outlined in Appendix 4 of Partners *Against Weeds: An Action Plan for the Bureau of Land Management*.

- Incorporate invasive/noxious weed management strategies into the preconstruction planning and design process for all surface disturbance activities including road, pipeline, well pad and ancillary facility construction.

- Inventory and remove existing invasive/noxious weed seed sources that could be

transported into relatively weed-free areas by passing vehicles.

- Clean muddy off-road equipment before moving into relatively weed-free areas.

- Minimize removal of native vegetation during construction of roads, pipelines, well pads and ancillary facilities.

- Stabilize disturbed areas and reestablish vegetation on all bare ground using mixtures and treatment guidelines prescribed in the approved APD/ROW as soon as practical to minimize weed spread.

- Store gravel, top soil and fill in relatively weed-free areas.

- Where possible, limit access to all disturbed sites that are not yet re-vegetated.

- Monitor disturbed and re-vegetated sites to ensure that desired species are thriving and invasive/noxious weeds are not present. Treat, reseed and fertilize as necessary.

- Monitor roads and other disturbed areas throughout the life of the project and for three years after reclamation to insure that invasive/noxious weeds are identified and eradicated.

- Ensure that all invasive/noxious weed control measures adhere to standards in the Decision Record for the Rock Springs District Noxious Weed Control EA or applicable updated guidance.

- Cooperate with the Sweetwater County Weed and Pest District to identify appropriate methods of weed control.

- Before treatment of invasive/noxious weeds, submit Pesticide Use Proposal (PUP) to the BLM for approval, ensure that all pesticides intended for use are on the BLM's approved label list for use on public lands (the label list is updated each year). The PUP(s) s must be approved prior to any spraying. PUP's can be approved for up to a three year period.

- Ensure that pesticide applicators are certified with an up to date Pesticide Applicator's License before performing spraying work.

- Submit Pesticide Application Records to the BLM RSFO each year. Ensure that treatments comply with all federal and state regulations regarding use of pesticides, including those outlined in the following:

    - BLM Information Bulletin No. WY-98-106, *Weed Management Guidance*;
    - Instruction Memorandum No. WY-99-29, *Executive Order #13112 : Invasive Species*;
    - Washington Information Bulletin No. 99-110; *Submission of Pesticide Use Report*;
    - Information Bulletin No. WY-2000-25: *Annual Pesticide Use Report.*

Air Quality

- All BLM conducted or authorized activities (including natural gas development alternatives) must comply with applicable local, state, tribal and Federal air quality regulations and

standards. Anadarko will adhere to all applicable ambient air quality standards, permit requirements (including preconstruction, testing, and operating permits), motorized equipment and other regulations, as required by the State of Wyoming, Department of Environmental Quality, Air Quality Division (WDEQ-AQD).

- Anadarko will not allow burning garbage or refuse at well locations or other facilities. Any other open burning will be conducted under the permitting provisions of Chapter 10, Section 2 of the Wyoming Air Quality Standards and Regulations (WDEQ-AQD).

- On Federal land, Anadarko will initiate immediate abatement of fugitive dust (by application of water, chemical dust suppressants, or other measures) when air quality, soil loss, or safety concerns are identified by the BLM or the WDEQ-AQD. These concerns include, but are not limited to, potential exceedances of applicable air quality standards. The BLM will approve the control measure, location, and application rates. If watering is the approved control measure, the operator must obtain the water from state-approved source(s).

- Anadarko will seed appropriate permits and/or follow state protocol for approval of all on-site temporary or permanent equipment used in association with this project from the Wyoming Department of Environmental Quality, Air Quality Division.

NO_x Mitigation

- In the permitting of compressor engines, the WDEQ-AQD requires application of the Best Available Control Technology (BACT) process. As a result of the BACT process, emissions rates for compressor engines 100 hp and greater average 1.0 g/hp-hr NO_x. With the application of non-selective catalytic reduction, NO_x emissions for some compressor engines can be reduced to 0.7 g/hp-hr.
- Compressors and well pump sources powered by electric motors will reduce NO_x emissions within the immediate project area and shall be used where feasible.

Particulate Matter Mitigation

- Roads and well locations constructed on soils susceptible to wind erosion will be appropriately surfaced to reduce the amount of fugitive dust generated by vehicle traffic.
- Water or other dust suppressants shall be applied as necessary on unpaved roads and construction areas to reduce problem fugitive dust emissions.
- Operators shall establish and enforce speed limits on all project related unpaved roads to reduce vehicle fugitive dust.

Transportation

- Existing roads shall be used as collectors and local roads whenever possible. Standards for road design shall be consistent with BLM Road Standards Manual Section 9113.

- Roads not required for routine operation and maintenance of producing wells and ancillary facilities will be permanently blocked, reclaimed, and revegetated.

- Areas with important resource values, steep slopes and fragile soils shall be avoided where possible in planning for new roads.

State Highways

- Coordination with WYODOT and the Sweetwater Road and Bridge Department to ensure that the approach to the SCR 4-16 turnoff from WYO 430 is adequate to handle tractor trailer combinations.
- Coordination with WYODOT and the Sweetwater Road and Bridge Department to ensure that the approach from SCR 4-26 to WYO 430 is paved or otherwise treated to allow trucks to shed gravel before entering the highway.

County Roads

- Anadarko and contractor shall develop policies to reinforce speed limits and other traffic safety laws on SCR 4-26 and 4-24, and on operator-maintained roads within the CRPA.
- Anadarko shall provide assistance to the Sweetwater Road and Bridge Department in obtaining gravel, water and dust suppressant for application on SCR 4-26 and 4-24 as needed.

Minerals/Paleontology

- Mitigation measures presented in the Soils and Water Resources sections will avoid or minimize many of the potential impacts to the surface mineral resources. Protection of subsurface mineral resources from adverse impacts will be provided by the BLM casing and cementing policy.

- Impacts to fossil resources can be reduced by the implementation of paleontologic resource mitigation measures. These measures include the following:

- Field Survey. Detailed preconstruction field surveys shall be conducted within the CRPA in area where construction will disturb surface exposures or subsurface bedrock of the Green River, Wasatch, and Fort Union. Field survey will involve a visual examination of the formation by a BLM-approved paleontologist in areas of exposure and will recommend additional mitigation. A report of findings, including recommendations for further mitigation or negative findings must be filed by the BLM-approved paleontologist and approved by the BLM before work can be authorized. After review of the paleontologist's report, the BLM will determine the need for additional mitigation measures. These could include collection of specimens and monitoring of excavation.

- Worker Instruction. Construction personnel will be instructed about the types of fossils they could encounter and the steps to take if they uncover fossils during construction. Workers will be informed that destruction, collection or excavation of vertebrate or other scientifically-significant invertebrate or plant fossil materials from federal land without a federal permit is illegal and they and their company could face charges if they knowingly destroy or remove fossils.

- Discovery Contingency. Shall fossil resources be uncovered during surface disturbance associated with the Proposed Action, authorized personnel shall immediately notify the BLM and work shall cease immediately in the area of the discovery until authorized by the BLM AO. A BLM-approved paleontologist may be needed to evaluate the fossil material. If fossil

remains of significance are identified then additional mitigation measures may be required. Additional mitigation could include avoidance, collection, identification, and monitoring and may delay resumption of work.

- If field survey does not reveal significant fossils, no additional work for paleontology may be recommended in the areas surveyed.

Soils

- Reduce the area of disturbance to the absolute minimum necessary for construction and production operations while providing for the safety of the operation.

- Where feasible, locate pipelines immediately adjacent to roads to avoid creating separate areas of disturbance and in order to reduce the total area of disturbance.

- Avoid using frozen or saturated soils as construction material.

- Minimize construction activities in areas of steep slopes.

- Design cutslopes in a manner that will allow retention of topsoil, surface treatment such as mulch, and subsequent revegetation.

- Selectively strip and salvage topsoil or the best suitable medium for plant growth from all disturbed areas to a minimum depth of 6 inches on all well pads.

- Where possible, minimize disturbance to vegetated cuts and fills on existing roads that are improved.

- Install runoff and erosion control measures such as water bars, berms, and interceptor ditches if needed.

- Install culverts for ephemeral and intermittent drainage crossings. Design all drainage crossing structures to carry the 25- to 50-year discharge event, or as otherwise directed by the BLM.

- Implement minor routing variations during access road layout to avoid steep slopes adjacent to ephemeral or intermittent drainage channels. Disturbance will not encroach within 500 feet of perennial surface water and 100 feet of the thalweg in ephemeral channels.

- Include adequate drainage control devices and measures in the road design (e.g., road berms and drainage ditches, diversion ditches, cross drains, culverts, out-sloping, and energy dissipaters) at sufficient intervals and intensities to adequately control and direct surface runoff above, below, and within the road environment to avoid erosive concentrated flows. In conjunction with surface runoff or drainage control measures, use erosion control devices and measures such as temporary barriers, ditch blocks, erosion stops, mattes, mulches, and vegetative covers. Implement a revegetation program as soon as possible to re-establish the soil protection afforded by a vegetal cover.

- Upon completion of construction activities, restore topography to near pre-existing contours at the well sites, along access roads and pipelines, and other facilities sites; replace up to 6 inches of topsoil or suitable plant growth material over all disturbed surfaces; apply fertilizer as required; seed; and mulch.

Water Resources

- Limit construction of drainage crossings to no-flow periods or low-flow periods.

- Minimize the area of disturbance within perennial, ephemeral and intermittent drainage channel environments.
- Prohibit construction of well sites, access roads, and pipelines within 500 feet of surface water and/or riparian areas, and 100 feet from the thalweg of ephemeral channels. Possible exceptions to this will be granted by the BLM based on an environmental analysis and site-specific mitigation plans.

- Design channel crossings to minimize changes in channel geometry and subsequent changes in flow hydraulics.

- Maintain vegetation barriers occurring between construction activities and perennial, ephemeral and intermittent flows or channels, with the exception of approved right angle linear feature crossings, which, with the exception of the active travel path of a roadway, shall be reclaimed.

- Design and construct interception ditches, sediment traps/silt fences, water bars, silt fences and revegetation and soil stabilization measures if needed.

- Construct channel crossings by pipelines such that the pipe is buried a minimum of four feet below the channel bottom.

- Regrade disturbed channel beds to the original geometric configuration and the same or very similar bed material replaced.

- Case wells during drilling, and case and cement all wells in accordance with Onshore Order No. 2 to protect all high quality water aquifers. High quality water aquifers are aquifers with known water quality of 10,000 TDS or less. Include well casing and welding of sufficient integrity to contain all fluids under high pressure during drilling and well completion. Further, wells will adhere to the appropriate BLM cementing policy.

- Construct the reserve pits in cut rather than fill materials or compact and stabilize fill. Inspect the subsoil material of the pit to be constructed in order to assess soil stability and permeability and whether reinforcement and/or lining are required. If lining is required, as specified in the GRRA RMP ROD (50 feet or less to ground water and permeability grater than 10^{-7} cm/hour), line the reserve pit with a reinforced synthetic liner at least 12 mils in thickness and a bursting strength of 175 x 175 pounds per inch (ASTMD 75179). Reserve Pit lining requirements will be handled on a case-by-case basis during the APD process taking into consideration water quality, soil permeability, and depth to groundwater.

- Maintain two feet of freeboard on all reserve pits to ensure the reserve pits are not in danger of overflowing. Shut down drilling operations until the problem is corrected if leakage is found outside the pit.

- Extract hydrostatic test water used in conjunction with pipeline testing and all water used during construction activities from sources with sufficient quantities and through appropriation permits approved by the State of Wyoming.
- Discharge hydrostatic test water in a controlled manner onto an energy dissipator. The water is to be discharged onto undisturbed land that has vegetative cover, if possible, or into an established drainage channel. Prior to discharge, treat or filter the water to reduce pollutant levels or to settle out suspended particles if necessary. If discharged into an established drainage channel, the rate of discharge will not exceed the capacity of the channel to safely convey the increased flow, and the hydrostatic test water quality will be equal to or better than the receiving waters. Coordinate all discharge of test water with the Wyoming State Engineer's Office (SEO), Wyoming Department of Environmental Quality/Water Quality Division (WDEQ/WQD), and the BLM.

- Discharge all concentrated water flows within access road ROWs onto or through an energy dissipator structure (e.g., riprapped aprons and discharge points) and discharge into undisturbed vegetation.

- Develop and implement a pollution prevention plan (PPP) for storm water runoff at drill sites as required per Wyoming Department of Environmental Quality (WDEQ) storm water National Pollution Discharge Elimination System (NPDES) permit requirements. The WDEQ requires operators to obtain a field permit for fields of 20 wells or more.

- Exercise stringent precautions against pipeline breaks and other potential accidental discharges of toxic chemicals into adjacent streams. If liquid petroleum products are stored on-site in sufficient quantities (per criteria contained in 40 CFR Part 112), a Spill Prevention Control and Countermeasures (SPCC) plan will be developed in accordance with 40 CFR Part 112, dated December 1973.

- Coordinate all crossings or encroachments of waters of the U.S. with the U.S. Army Corps of Engineers (COE).

- Discharge all water produced from the gas bearing formation(s) into tanks, pumps, pipelines, and existing injection wells to preclude contamination of surface waters with high mineral content formation water.

- Shall existing water wells be adversely affected by the project, the company shall rework, replace, or otherwise compensate the well owner.

Fisheries

- No fisheries mitigation is needed beyond that indicated under Water Resources and Special Status Species Fish.

Vegetation and Wetlands

Other mitigation measures under Soils and Water Resources will also apply to vegetation and wetlands.

- File noxious weed monitoring forms with the BLM and implement, if necessary, a weed control and eradication program.
- Evaluate all project facility sites for occurrence and distribution of waters of the U.S., special aquatic sites, and jurisdictional wetlands. All project facilities will be located out of these sensitive areas. If complete avoidance is not possible, minimize impacts through modification and minor relocations. Coordinate activities that involve dredge or fill into wetlands with the COE.

Wildlife

- During reclamation, establish a variety of forage species that are useful to resident herbivores.

- Prohibit unnecessary off-site activities of operational personnel in the vicinity of the drill sites. Inform all project employees of applicable wildlife laws and penalties associated with unlawful take and harassment.
- Limit construction activities as per BLM authorizations within big game crucial winter range from November 15 to April 30.

- Complete a raptor survey of the CRPA prior to construction to ensure that well sites are located away from potential conflict areas.

- Survey and clear well sites within one mile of raptor nests identified in the raptor survey prior to the commencement of drilling and construction during the raptor nesting period (February 1 through July 31).

- When an `active' raptor nest is within one mile (Ferruginous Hawk) or ½ mile (all other raptors) of a proposed well site, restrict construction during the critical nesting season for that species.

- Do not perform construction activities within 0.25 mile of existing sage grouse leks at any time except as authorized in writing by exception, including documented supporting analysis, by the Authorizing Official. All surface disturbances will abide by sage-grouse stipulations as detailed in the GRRA RMP ROD and supporting documents.

- Provide for sage grouse lek protection during the breeding, egg-laying and incubation period (March 1 - June 30) by restricting construction activities within a two-mile radius of active sage grouse leks. Exceptions may be granted if the activity will occur in unsuitable nesting habitat.

Special Status Plants

- Employ site-specific recommendations developed by the BLM IDT for staked facilities.

- Minimize impacts due to clearing and soil handling.

- Monitor and control noxious weeds.

- Comply with Section 404(b) (1) guidelines of the federal Clean Water Act (CWA).

- Perform clearance surveys for plant species of concern.

Special Status Animals

- Implement measures discussed in Chapter 4 (Section 4.8) in compliance with the Endangered Species Act (ESA),

Visual Resources

- Utilize existing topography, vegetation, and color that mimic the existing environment to screen roads, pipeline corridors, drill rigs, well heads, and production facilities from view.

- Paint well and central facilities site structures with flat colors (e.g., Carlsbad Canyon or Desert Brown) that blend with the adjacent surrounding undisturbed terrain, except for structures that require safety coloration in accordance with Occupational Safety and Health Administration (OSHA) requirements.

Noise

- Muffle and maintain all motorized equipment according to manufacturers' specifications.

- The Brady Plant H_2S Contingency Plan shall be reviewed and updated if necessary to ensure that contingency procedures effectively address the planned drilling and field development activities.

Recreation

- Minimize conflicts between project vehicles and equipment and recreation traffic by posting appropriate warning signs, implementing operator safety training, and requiring project vehicles to adhere to low speed limits.

- Monitor recreational use of roads, especially during hunting seasons.

Socioeconomics

- Implement hiring policies that will encourage the use of local or regional workers who will not have to relocate to the area.

- Coordinate project activities with ranching operations to minimize conflicts involving livestock movement or other ranch operations. This will include scheduling of project activities to minimize potential disturbance of large-scale livestock movements. Establish effective and frequent communication with affected ranchers to monitor and correct problems and coordinate scheduling.

- Anadarko and its subcontractors will obtain Sweetwater County sales and use tax licenses for purchases made in conjunction with the project so that project-related sales and use tax revenues will be distributed to Sweetwater County.

Cultural Resources

- Conduct a Class III inventory prior to any ground disturbing activities and identify sites considered eligible for, or already on the NRHP.

- If a site is considered eligible for, or is already on the National Register of Historic Places (NRHP), avoidance is the preferred method for mitigating adverse effects to that property.

- Mitigation of adverse effects to cultural/historical properties that cannot be avoided will be accomplished by the preparation of a cultural resources mitigation plan.

- If unanticipated or previously unknown cultural resources are discovered at any time during construction, all construction activities will halt and the BLM Authorized Officer (AO) will be immediately notified. Work will not resume until a Notice to Proceed is issued by the BLM AO.

Health and Safety

- Sanitation facilities installed on the drill sites and any resident camp site locations will be approved by the WDEQ.

- During construction and upon commencement of production operations, Anadarko will have a chemical or hazardous substance inventory for all such items that may be at the site. Anadarko will institute a Hazard Communication Program for its employees and will require subcontractor programs in accordance with OSHA 29 CFR 1910.1200. These programs are designed to educate and protect the employees and subcontractors with respect to any chemicals or hazardous substances that may be present in the work place. It will be required that as every chemical or hazardous material is brought on location, a Material Safety Data Sheet (MSDS) will accompany that material and will become part of the file kept at the field office as required by 29 CFR 1910.1200. All employees will receive the proper training in storage, handling, and disposal of hazardous substances.

- To minimize undue exposure to hazardous situations, require measures that will preclude the public from entering hazardous areas and place warning signs alerting the public of truck traffic.
- Haul all garbage and rubbish from the drill site to a State-approved sanitary landfill for disposal. Collect and store any garbage or refuse materials on location prior to transport in containers approved by the BLM.

- Spill Prevention Control and Countermeasure Plans will be written and implemented as necessary in accordance with 40 CFR Part 112 to prevent discharge into navigable waters of the United States.

- Chemical and hazardous materials will be inventoried and reported in accordance with the Superfund Amendments and Reauthorization Act (SARA) Title III, 40 CFR Part 335, if quantities exceeding 10,000 pounds or the threshold planning quantity (TPQ) are to be produced or stored in association with the Proposed Action. The appropriate Section 311 and 312 forms will be submitted at the required times to the State and County Emergency Management Coordinators and the local fire departments.

- Any hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), will be transported and/or disposed of in accordance with all applicable federal, state, and local regulations.
- Anadarko plans to design operations to severely limit or eliminate the need for Extremely Hazardous substances. Anadarko also plans to avoid the creation of hazardous wastes as defined by RCRA wherever possible.

- Anadarko shall coordinate emergency response planning with the Sweetwater County Emergency Management Agency and provide documentation regarding compliance with Federal Hazardous Material Regulations and the Uniform Fire Code.

- In any area of operations (drill site, compressor site, etc.) where noise levels may exceed federal OSHA safe limits, Anadarko and its contractors will provide and require the use of proper personnel protective equipment by employees.

Reclamation

The following procedures will be followed by Anadarko to assure that disturbed areas are stabilized and that revegetation efforts are enhanced.

- Scarification. Prior to reseeding, all compacted areas will be scarified by ripping or chiseling to loosen compacted soils. Scarification promotes water infiltration, better soil aeration and root penetration. Scarification will be done when soils are dry to promote shattering of compacted soil layers.

- Seedbed Preparation. Appropriate seed bed preparation is critical for seed establishment. Seedbed preparation will be conducted immediately prior to seeding to prepare a firm seedbed conducive to proper seed placement and moisture retention. Seedbed preparation will also be performed to break up surface crusts and to eliminate weeds that may have developed between final grading and seeding. In most cases, chiseling is sufficient because it leaves a surface smooth enough to accommodate a tractor-drawn drill seeder and rough enough to catch broadcast seed and trap moisture and runoff. In low to moderate saline soils, a firm, weed-free seedbed is recommended. With high salinity levels, particularly if a high water table is involved, a fallow condition may not provide the best seedbed. If existing vegetation and weeds are chemically eradicated, the remaining dessicated roots and stems improve moisture infiltration and percolation, reduces evaporation from the soil surface, and protects emerging seedlings (Majerus 1996).

- Seed Mixtures. Seed mixtures will be specified on a site-specific basis and their selection will be justified in terms of local vegetation and soil conditions. Livestock palatability and wildlife habitat needs will be given consideration in seed mix formulation. The recommended general seed mixtures shown in Table 2-1 were developed from observation of successful revegetation projects in the Green River Basin region and observation of

dominant species in the project area. BLM guidance for native seed use is BLM Manual 1745 (Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife, and Plants). The WGFD recommends that BLM consider shrub species in seed mixtures. BLM will coordinate with WGFD to insure that the correct shrub species are incorporated into seed mixtures on public lands. Native species to be considered include bluebunch wheatgrass, streambank wheatgrass, bottlebrush squirreltail, needle-and-thread grass and Wyoming big sagebrush.

- Fall seeding will occur from about September 15 until ground freeze or snow pack prevents critical seed soil coverage. The optimum time to seed a forage or cover crop in saline-alkaline soils is late fall (mid-October to December) or during a snow-free period during the winter (Majerus 1996). Ideally, in saline-alkaline soils, the seed shall be in the ground before the spring season so that it can take advantage of the diluting effects of early spring moisture. Spring seeding will be completed by May 30 or as directed by the BLM. Seed will be used within 12 months of testing.

- Seeding Method. Drill seeding will be used where the terrain is accessible by equipment. The planting depth for most forage species is 1/4 to 1/2 inch (5-10 mm). A double disk drill equipped with depth bands will ensure optimum seed placement. The seed will be separated by boxes to prevent seed from separating due to size and weight. Rice hulls or other appropriate material would be added to the seed as necessary to prevent separation. The drill would be properly calibrated so that seed is distributed according to the rates specified for each seed mix.

Plant Species	Variety (if applicable)	Recommended Drill Seeding Rate (lbs/ac PLS)[A]
SALINE/SODIC SOILS		
Western wheatgrass	'Rosanna'	4.0
Sandberg bluegrass		2.0
Indian ricegrass		3.0
Bottlebrush squirreltail		1.0
Alkali sacaton		1.0
Inland saltgrass		1.0
Scarlet globemallow		1.0
Gardner saltbush		2.0
Shadscale		2.0
TOTAL		**17.0**
WETLAND/HIGH WATER SOILS		
Tufted hairgrass		2.0
Basin wildrye		5.0
Slough grass		6.0
Bluejoint reedgrass		3.0
Alkali sacaton		1.0
TOTAL		**17.0**
UPLAND SOILS		
Thickspike wheatgrass	'Critana'	4.0
Western wheatgrass	'Rosanna'	4.0
Indian ricegrass		4.0
Shadscale		1.0
Scarlet globemallow		1.0
Winterfat		2.0
Gardner saltbush		1.0
Sandberg bluegrass		2.0
TOTAL		**19.0**

Standard success criteria would be based on attainment of total vegetation cover. Standard success criteria would be based on attainment of 50% of predisturbance cover in three years and 80% of predisturbance cover in five years. These identified seed mixes could be modified or added to by the BLM, as needed or required to meet the RSFO objectives for reclamation.

APPENDIX C
U.S. FISH AND WILDLIFE SERVICE
CONSULTATION LETTER

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
4000 Airport Parkway
Cheyenne, Wyoming 82001

SEP RECEIVED

In Reply Refer To:
ES-61411/W.02/WY7491
ES-6-RO-94-F006(a)-WY88

August 29, 2003

Memorandum

To: Ted Murphy, Assistant Field Manager, Bureau of Land Management, Rock Springs Field Office, Rock Springs, Wyoming

From: Brian T. Kelly, Field Supervisor, U.S. Fish and Wildlife Service, Wyoming Field Office, Cheyenne, Wyoming

Subject: Informal and Formal Consultation for the Copper Ridge Natural Gas Development Project

Thank you for your letter of August 1, 2003, regarding Anadarko's proposed Copper Ridge natural gas development project located in T16N, R100-101W, in Sweetwater County, Wyoming. You have requested informal and formal consultation pursuant to section 7(a)(2) of the Endangered Species Act of 1973 (Act), as amended, 50 CFR §402.13 & 402.14 for your determination of potential effects to listed and proposed species from this project. The U.S. Fish and Wildlife Service (Service) is providing you with concurrence based on the information you have provided.

Your letter states that suitable habitat for mountain plover (*Charadrius montanus*) occurs within the project area. The Service concurs with your "not likely to jeopardize" determination for the mountain plover based on your commitment to avoid suitable habitat from April 10 to July 10 to protect nesting plovers.

We have reviewed the information you have provided regarding the impacts of the proposed project on the endangered Colorado pikeminnow (*Ptychocheilus lucius*), humpback chub (*Gila cypha*), bonytail chub (*Gila elegans*), and razorback sucker (*Xyrauchen texanus*) of the Colorado River system. We understand that the development is anticipated to last from 3-4 years and will cause an average annual depletion of 10.11 acre-feet (40.46 acre-feet during the development of the project).

A Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) was initiated on January 22, 1988. The Recovery program was intended to be the reasonable and prudent alternative to avoid jeopardy to the endangered fish by depletions from the Upper Colorado River.

In order to further define and clarify the process in the Recovery Program, a section 7 agreement was implemented on October 15, 1993, by the Recovery Program participants. Incorporated into this agreement is a Recovery Implementation Program Recovery Action Plan (Plan) which identifies actions currently believed to be required to recover the endangered fish in the most expeditious manner in the Upper Colorado River Basin.

A part of the Recovery Program was the requirement that if a project was going to result in a depletion, a depletion fee would be paid to help support the Recovery Program. On July 5, 1994, the Service issued a biological opinion determining that the fee for depletions of 100 acre-feet or less would no longer be required. This was based on the premise that the Recovery Program has made sufficient progress to be considered the reasonable and prudent alternative avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat by depletions of 100 acre-feet or less. Therefore, **the depletion fee for this project is waived**.

Permits or other documents authorizing specific projects, which result in depletions, should state that the Bureau of Land Management retains discretionary authority over each project for the purpose of endangered species consultation. If the Recovery Program is unable to implement the Plan in a timely manner, reinitiation of section 7 consultation may be required so that a new reasonable and prudent alternative can be developed by the Service.

This concludes consultation pursuant to the regulations implementing the Act, 50 C.F.R. § 402.13 & 402.14. This project should be re-analyzed if new information reveals effects of the action that may affect listed or proposed species or designated or proposed critical habitat in a manner or to an extent not considered in this consultation; if the action is subsequently modified in a manner that causes an effect to a listed or proposed species or designated or proposed critical habitat that was not considered in this consultation; and/or, if a new species is listed or critical habitat is designated that may be affected by this project.

You have made a "no effect" determination for the bald eagle (*Háliaeetus leucocephalus*), Ute ladies'-tresses (*Spiranthes diluvialis*), and black-footed ferret (*Mustela nigripes*). Although the white-tailed prairie dog town, observed within the project area, does not provide suitable habitat for the black-footed ferret, we strongly encourage the Bureau to use its authority to require that this project be moved outside of prairie dog towns in order to further the conservation of the white-tailed prairie dog pursuant to the Bureau's 6840 Special Status Species Management Plan. These proactive measures will protect the myriad of species that inhabit prairie dog towns.

We commend the Bureau for requiring avoidance of suitable mountain plover habitat within the project area during the mountain plover nesting season which will protect other nesting migratory birds. In the event that raptor nests are discovered within 1-mile of the project area we recommend a disturbance-free buffer zone of 0.5-mile (1-mile for bald eagle and ferruginous hawk) around all active nests during the nesting season.

We appreciate your efforts to ensure the conservation of endangered, threatened, and candidate species and migratory birds. If you have further questions on this subject, please contact Kathleen Erwin of my staff at the letterhead address or phone (307) 772-2374, extension 28.

cc: WGFD, Lander, Non-Game Coordinator (B. Oakleaf)
WGFD, Cheyennne, Statewide Habitat Protection Coordinator (T. Collins)